

CHAPTER 30 ENVIRONMENT

ARTICLE IV STORMWATER MANAGEMENT

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Division 1. General Provisions

30-131 Statutory Authority

The Virginia Stormwater Management Law ("Law"), Title 10.1, Chapter 6, Article 1.1 of the Code of Virginia, enables localities to adopt, by ordinance, a stormwater management program consistent with state regulations promulgated pursuant to the law.

30-132 Purpose

- A. The purpose of this ordinance is to establish minimum stormwater management requirements and controls to protect properties and the general health and safety of the public within this jurisdiction by minimizing flooding, stream bank erosion and non-point source pollution of aquatic resources. This ordinance seeks to meet that purpose through the following objectives:
1. Require that land disturbing activities control the post-development runoff characteristics, to the pre-development runoff characteristics in order to reduce the magnitude and frequency of flooding, siltation, stream bank erosion, and property damage.
 2. Establish minimum design criteria for the protection of properties and aquatic resources downstream from land disturbing activities from damages due to increases in velocity, frequency, duration, and peak flow rate of stormwater runoff.

3. Establish minimum design criteria for measures to minimize non-point source pollution from stormwater runoff, which would otherwise reduce water quality.
4. Establish provisions for long-term responsibility for and maintenance of stormwater management control devices and other techniques specified to manage the quality and quantity of runoff.

30-133 Applicability

This ordinance shall be applicable to all land development projects except as provided by this ordinance. The ordinance also applies to land development activities that are smaller than the minimum applicability criteria if such activities are part of a larger common plan of development that meets the applicability criteria, even though multiple separate and distinct land development activities may take place at different times on different schedules.

B. The following activities are exempt from these stormwater performance criteria:

1. Permitted surface or deep mining operations and projects, or oil and gas operations and projects conducted under the provisions of Title 45.1 of the Act;
2. Tilling, planting or harvesting of agricultural, horticultural, or forest crops;
3. Single-family residences separately built and not part of a subdivision, including additions or modifications to existing single-family detached residential structures (provided that there are no existing or anticipated flooding or erosion problems downstream of the discharge point);
4. Land development projects that disturb less than 5,000 square feet of land area (provided that there is no existing or anticipated flooding or erosion problems downstream of the discharge point);
5. Linear development projects, provided that (i) less than 5,000 square feet of land will be disturbed per outfall or watershed, (ii) there are no existing flooding or erosion problems downstream of the discharge point.

30-134 Compatibility with Other Permit and Ordinance Requirements

This ordinance is not intended to interfere with, abrogate, or annul any other ordinance, rule or regulation, statute, or other provision of law. The requirements of this ordinance should be considered minimum requirements, and where any provision of this ordinance imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, whichever provisions are more restrictive or impose higher protective standards for human health or the environment shall be considered to take precedence.

30-135 Severability

If the provisions of any Division, section, subsection, paragraph, subdivision or clause of this ordinance shall be judged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any Division, section, subsection, paragraph, subdivision or clause of this ordinance.

30-136 Program Administration

The City of Salem designates the Erosion and Sediment Control Agent as the local Stormwater Management Administrator.

30-137 Stormwater Management Handbook

The plan approving authority will utilize the policy, criteria and information including specifications and standards of the Virginia Stormwater Management Handbook, Latest Edition, for the proper implementation of the requirements of this ordinance. This Handbook includes a list of acceptable stormwater treatment practices, including the specific design criteria for each stormwater practice. The Handbook may be updated and expanded from time to time, based on improvements in engineering, science, monitoring and local maintenance experience. Stormwater treatment practices that are designed and constructed in accordance with these design and sizing criteria will be presumed to meet the minimum water quality performance standards.

Division 2 Definitions:

30.138 The following words, terms and phrases, when used in this article, shall have the meanings described to them in this division except where the context clearly indicates a different meaning:

"Act" means Article 1.1 (§ 10.1-603.1 et seq.) of Chapter 6 of Title 10.1 of the Code of Virginia.

"Adequate Channel"if:

- **Total drainage area to the point of analysis within the channel is two hundred times greater than the contributing drainage area of the project in question**
- **Natural channels are termed adequate if a 2-year storm does not overtop the channel banks and does not cause erosion to the channel bed or banks**
- **All previously constructed man-made channels shall be termed adequate if a 10-year storm does not overtop its banks and a 2-year storm does not cause erosion of the channel bed or banks. All storm drain pipes and systems must contain the 10-year storm within the pipe or storm sewer system.**

“Applicant” means any person submitting a stormwater management plan for approval.

“Backwater” means (a) a flow retarding influence due to a downstream dam, bridge, culvert, or another stream and/or (b) The increase in water surface elevation, due to a constriction, above the normal unconstricted elevation.

“Best Management Practice (BMP)” means a structural or nonstructural practice which is designed to minimize the impacts of development on surface and groundwater systems.

“Board” means the Virginia Board of Conservation and Recreation.

“Bridge” means a structure erected over a watercourse, depression, or obstacle. As distinguished from a culvert it is a large structure spanning a watercourse, the bed of which is left comparatively undisturbed.

“Building” means a walled or roofed structure with two (2) or more outside rigid walls and a fully secured roof, that is affixed to a permanent site, including a gas or liquid storage tank that is principally above ground as well as a manufactured home.

“Channel” means a natural or artificial watercourse with a defined bed and banks that conducts continuously or periodically flowing water.

“Conduit” means a general term for any facility intended for the conveyance of water, whether open or closed.

“Culvert” means a closed conduit carrying water through a highway, railroad, or other embankment. A culvert is distinguished from a bridge by generally having the same material all around its perimeter, and having a regular, symmetrical shape.

“Debris” means any material, including floating trash or suspended sediment moved by a flowing stream.

“Dedication” means the deliberate appropriation of property by its owner for a specific public use.

“Developer” means a person who undertakes land disturbance activities.

“Development” means land development or land development project.

“Ditch” means an artificial channel.

“Drainage Area” means the drainage area of a stream at a specified location, measured in a horizontal plane, which is enclosed by a topographic divide such that direct surface runoff from precipitation normally would drain by gravity into the drainageway at that point.

“Drainage Easement” means a legal right granted by a landowner to a grantee allowing the use of private land for stormwater management purposes.

“Erosion and Sediment Control Plan” means a plan that is designed to minimize the accelerated erosion and sediment runoff at a site during construction activities.

“Flood Peak” means the maximum discharge of a particular flood at a given point along a stream.

“Floodplain” means (a) any plain which borders a stream and is covered by its water in time of flood. (b) stream bed areas subject to recurrent overflow or

inundation.

"Flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas.

"Floodway" means the channel of a river or other water course and that portion of the adjacent floodplain that must remain open to permit passage of the base flood without cumulatively increasing the water surface elevation more than a designated height (no greater than 1 foot)

"Frequency of Storm" stated in years is the probability that a storm event with a given intensity will occur in any given year. For example, a 10-year storm has a 10 percent chance (10 divided by 100) and a 25-year storm has a 4 percent chance (25 divided by 100) of occurring in any given year.

"Impervious" means the condition of a material that prevents percolation.

"Infiltration" means the process of percolating stormwater into the subsoil.

"Invert" means the floor, bottom, or lowest part in the cross section of conduit.

"Land Development" or **"Land Development Project"** means a manmade change to the land surface that potentially changes its runoff characteristics.

"Land Disturbance Activity" means any activity which changes the volume or peak flow discharge rate of rainfall runoff from the land surface. This may include the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, or any activity which bares soil or rock or involves the diversion or piping of any natural or man-made watercourse.

"Landowner" means the legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.

"Linear Development Project" means a land development project that is linear in nature such as, but not limited to, (i) the construction of electric and telephone utility lines, and natural gas pipelines; (ii) construction of tracks, rights-of-way, bridges, communication facilities and other related structures of a railroad company; and (iii) highway construction projects.

"Local Stormwater Management Program" means the collective requirements of this Chapter and all attendant regulations employed by the City of Salem to manage runoff from land development projects.

"Locality" means a county, city, or town.

"Maintenance Agreement" means a legally recorded document that acts as a property deed restriction, and which provides for long-term maintenance of storm water management practices.

"Nonpoint Source (NPS) Pollution" means pollution from any source other than from any discernible, confined, and discrete conveyances, and shall include, but not be limited to, pollutants from agricultural, mining, construction, subsurface disposal and urban runoff sources.

"Nonpoint Source Pollutant Runoff Load" or **"Pollutant Discharge"** means the average amount of a particular pollutant measured in pounds per year, delivered in a diffuse manner by stormwater runoff

"Owner" means the owner or owners of the freehold of the premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, lessee or other person, firm or corporation in control of a property.

“Percolation” means the movement of stormwater into the subsoil.

“Person” means any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, county, city, town or other political subdivision of the Commonwealth, any interstate body or any other legal entity.

“Plan-approving Authority” means the City of Salem

“Post-development” refers to conditions expected to exist after completion of the land development activity on a specific site or tract of land.

“Pre-development” refers to the conditions that exist at the time that plans for the land development of a tract of land are approved by the plan approving authority. Where phased development or plan approval occurs (preliminary grading, roads and utilities, etc.), the existing conditions at the time *prior to* the first item being approved or permitted shall establish pre-development conditions.

“Receiving Natural Watercourse” means natural watercourse with definite banks and bottoms, with flow either intermittently or at all times.

“Redevelopment” means the process of developing land that is or has been previously developed.

“Runoff” or **“stormwater runoff”** means that portion of precipitation that is discharged across the land surface or through conveyances to one or more waterways.

“Site” means the parcel of land being developed, or a designated planning area in which the land development project is located

“State Waters” means all waters on the surface and under the ground wholly or partially within or bordering the Commonwealth or within its jurisdiction.

“Stop Work Order” means an order issued which requires that all construction activity on a site be stopped.

“Stormwater Management (SWM) Facility” means a device that controls stormwater runoff and changes the characteristics of that runoff including, but not limited to, the quantity and quality, the period of release or the velocity of flow.

“Stormwater Management (SWM)” means the use of structural or non-structural practices that are designed to reduce storm water runoff pollutant loads, and/or peak flow discharge rates.

“Stormwater Management (SWM) Plan” or **“Plan”** means a document containing material for describing how existing runoff characteristics will be affected by a land development project and methods for complying with the requirements of the local program.

“Stormwater Runoff” means flow on the surface of the ground, resulting from precipitation.

“Subdivision” unless otherwise defined in a local ordinance adopted pursuant to § 15.1-465 of the Code of Virginia, means the division of a parcel of land into three or more lots or parcels of less than five acres each for the purpose of transfer of ownership or building development, or, if a new street is involved in such division, any division of a parcel of land. The term includes resubdivision and, when appropriate to the context, shall relate to the process of subdividing or to the land subdivided.

“Watercourse” means a permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water.

“Watershed” means a defined land area drained by a river, stream, drainage

ways or system of connecting rivers, streams, or drainage ways such that all surface water within the area flows through a single outlet.

Division 2. Stormwater Management Program Permit Procedures and Requirements

30-139 Land Disturbing Permit Required.

A. It is the intent of this Division that it be administered in conjunction with the subdivision, zoning and erosion and sediment control ordinances, wherein such apply to the development and subdivision of land or to development on previously subdivided land.

B. No person shall engage in any land disturbing activity greater than or equal to 5,000 square feet until he has acquired a land disturbing permit. Where land disturbing activities involve lands under jurisdiction of more than one local control program, the provisions which are more restrictive or impose higher protective standards for human health & safety and the environment shall be considered to take precedence.

30-140 Permit Application Requirements

A. Issuance of a land disturbing permit is conditioned on an approved stormwater management plan including a maintenance agreement and an erosion and sediment control plan, which plan or certification of such shall be presented at the time of application for such a permit, and in addition, the requirements of section 30-143 concerning a performance bond, cash escrow, letter of credit, any combination thereof, or such other legal arrangement as is acceptable under the provisions of section 30-143 and to the fees levied in this Division for land disturbing activities.

B. The plan approving authority shall review stormwater management plans submitted to it and grant written approval within 45 days of the receipt of the plan if it determines that the plan meets the requirements of the plan approving authority's regulations and if the person responsible for carrying out the plan certifies that he will properly perform the management measures included in the plan and will conform to the provisions of this section.

C. Any stormwater management plan submitted under the provisions of this section will be acted upon by the plan approving authority within 45 days from receipt by either approving or disapproving such plan in writing and giving specific plans for disapproval. If no formal action has been taken by the plan approving authority within the time specified in this subsection, the plan shall be deemed approved, and the person authorized to proceed with the proposed activity.

D. An approved plan can be changed by the authority that approved the plan in the following cases:

1. Where inspection has revealed that the plan is inadequate to satisfy applicable regulations; or
2. Where the person responsible for carrying out the approved plan finds that because of changed circumstances or for other reasons the approved plan cannot be effectively carried out, and proposed amendments to the plan, consistent with the requirements of this section, are agreed to by the plan approving authority and the person responsible for carrying out the plan.

30-141 Stormwater Management Plan Required.

No application for land development or land disturbance will be approved unless it includes a stormwater management plan, as required by this ordinance, detailing how runoff and associated water quality impacts resulting from the activity will be controlled or managed. A stormwater management plan shall consist of a plan view showing stormwater management facilities, main line storm sewers, a summary of stormwater management calculations and a stormwater management narrative. The stormwater management narrative shall evaluate the environmental characteristics of the project site, the potential impacts of all proposed development of the site, both present and future, on the water resources, and the effectiveness and acceptability of the measures proposed for managing stormwater generated at the project site. The narrative should include detailed calculations. The stormwater management plan shall be in accordance with the criteria established in this section. No land disturbing permit shall be issued until a satisfactory stormwater management plan, or a waiver thereof, shall have undergone a review and been approved by the plan approving authority after determining that the plan or waiver is consistent with the requirements of this Ordinance.

All stormwater management plans shall be appropriately sealed and signed by a Professional Engineer in adherence to all minimum standards and requirements pertaining to the practice of that profession in accordance with Chapter 4 (§ 54.1-400 et seq.) of Title 54.1 of the Code of Virginia and attendant regulations certifying that the plan meets all submittal requirements outlined in this ordinance and is consistent with good engineering practice. The stormwater management plan shall include all of the information required in the Stormwater Management Plan checklist found in the Virginia Stormwater Management Handbook, Latest Edition.

30-142 Stormwater Facility Maintenance Agreements

Prior to the issuance of any permit that has a stormwater management facility as one of the requirements of the permit, the applicant or owner of the site must execute a maintenance easement agreement and a formal maintenance covenant that shall be binding (by deed or plat) on all subsequent owners of land served by the stormwater management facility.

1. Maintenance Easement Agreement

The Maintenance Easement Agreement shall provide for access to the stormwater management facility at reasonable times for periodic inspection by the plan approving authority, or their contractor or agent, and for regular or special assessments of property owners to ensure that the facility is maintained in proper working condition to meet design standards and any other provisions established by this ordinance. The easement agreement shall be recorded by the plan approving authority in the land records. When any new drainage control facility is installed on private property, or when any new connection is made between private property and a public drainage control system, the property owner shall grant, after given notice and the opportunity to accompany the inspection, to the plan approving authority the right to enter the property at reasonable times and in a reasonable manner for the purpose of inspection. This includes the right to enter a property when it has a reasonable basis to believe that a violation of this ordinance is occurring or has occurred, and to enter when necessary for abatement of a public nuisance or correction of a violation of this ordinance.

2. Maintenance Covenants

Maintenance of all stormwater management facilities shall be ensured through the creation of a formal maintenance covenant that must be approved by the plan approving authority and recorded into the land record prior to final plan approval. The covenant shall identify by name or official title the person(s) responsible for carrying out the maintenance. Responsibility for the operation and maintenance of stormwater management facilities, shall remain with the property owner and shall pass to any successor or owner. If portions of the land are to be sold, legally binding arrangements shall be made to pass the basic responsibility to successors in title. These arrangements shall designate for each property owner, Homeowner's Association, or other legally established entity to be permanently responsible for maintenance. As part of the covenant, a schedule shall be developed for when and how often maintenance will occur to ensure proper function of the stormwater management facility. The covenant shall also include plans for annual inspections to ensure proper performance of the facility between scheduled maintenance and should also include "failure to maintain" provisions. In the event that maintenance or repair is neglected, or the stormwater management facility becomes a danger to public health or safety, the plan approving authority reserves the authority to perform the work and to recover the costs from the owner.

30-143 Performance Surety

A. All control measures required by the provisions of this section shall be undertaken at the expense of the applicant, and pending such actual provision

thereof, the applicant, owner, developer or subdivider shall execute and file with the city treasurer, prior to issuance of the land disturbing permit, an agreement and surety (cash escrow, letter of credit, or other legal arrangements satisfactory to the City Attorney, in his sole discretion), in an amount determined by the plan approving authority equal to the approximate total cost of providing stormwater management improvements, with surety approved by the city attorney, and certification that the plan will be followed. Such agreement and bond shall ensure that measures could be taken by the city at the applicant's expense should he fail after proper notice within the time specified to initiate or maintain appropriate action which may be required of him by such approved plan as a result of his land disturbing activity. Such bonding may be combined with other performance bonds required in conjunction with chapter 30, 78 or 106 of this Code.

B. Within 60 days of the completion of the requirements of the approved stormwater management plan, the surety, or the unexpended or unobligated portion thereof, except for the landscaping survivability, shall be refunded to the applicant or terminated, as the case may be. The landscaping portion of the stormwater management plan shall be inspected one (1) year after installation with replacement in accordance with the final plans and specifications prior to final release.

C. If the surety is not adequate to cover the cost to the plan approving authority for any work involved in stormwater management controls and/or best management practices, the city may collect the difference between the surety and the actual cost from the applicant. These requirements are in addition to all other provisions of law relating to the issuance of such permits and are not intended to otherwise affect the requirement of such permits.

Division 3. General Criteria for Stormwater Management

30-144 General

A. Determination of flooding and channel erosion impacts to receiving streams due to land development projects shall be measured at each point of discharge from the development project and such determination shall include any runoff from the balance of the watershed which also contributes to that point of discharge.

B. The specified design storms shall be defined as either a 24-hour storm using the rainfall distribution recommended by the U.S. Soil Conservation Service when using U.S. Soil Conservation Service methods or as the storm of critical duration that produces the greatest required storage volume at the site when using a design method such as the Modified Rational Method.

C. For purposes of computing runoff, all pervious lands in the site shall be assumed prior to development to be in good condition (if the lands are pastures, lawns, or parks), with good cover (if the lands are woods), or with conservation

treatment (if the lands are cultivated); regardless of conditions existing at the time of computation.

D. Construction of stormwater management facilities or modifications to channels shall comply with all applicable laws and regulations. Evidence of approval of all necessary permits, such as US Army Corps of Engineers and VA DEQ Wetland Permits, VPDES Permits, etc, shall be presented.

E. Impounding structures that are not covered by the Impounding Structure Regulations (4VAC 50-20-10 et seq.) shall be engineered for structural integrity during the 100-year storm event.

F. Pre-development and post-development runoff rates shall be verified by calculations that are consistent with good engineering practices and as recommended by the Virginia Stormwater Management Handbook, Latest Edition.

G. Outflows from a stormwater management facility shall be discharged to an adequate channel and velocity dissipaters shall be placed at the outfall of all stormwater management facilities and along the length of any outfall channel as necessary to provide a nonerosive velocity of flow from the basin to a channel.

H. Proposed residential, commercial, or industrial subdivisions shall apply these stormwater management criteria to the land development as a whole. Individual lots in new subdivisions shall not be considered separate land development projects, but rather the entire subdivision, even as developed in phases, shall be considered a single land development project. Hydrologic parameters shall reflect the ultimate land development and shall be used in all engineering calculations.

I. All stormwater management facilities shall have a maintenance plan which identifies the owner and the responsible party for carrying out the maintenance plan.

J. Any stormwater management impoundment structures within a FEMA designated floodplain shall be designed to gravity flow to a receiving channel with an invert above the 10-year WSEL.

K. Natural channel characteristics shall be preserved to the maximum extent practicable.

L. Land development projects shall comply with the Virginia Erosion and Sediment Control Law and attendant regulations

M. Non-Structural Stormwater Practices (Low Impact Design) designed to reduce the volume of stormwater runoff are strongly encouraged to reduce the amount of stormwater runoff that must be managed and improve the overall water quality of runoff from the site. This will help to minimize the reliance on structural practices

which require ongoing maintenance in order to be effective.

30-145 Structural Stormwater Management Practices

A. Minimum Control Requirements

All stormwater management practices shall be designed so that the specific storm frequency storage volume for the 5, 10-year post development/1, 2-year pre-development release respectively. If hydrologic or topographic conditions warrant greater control than that provided by the minimum control requirements, the plan approving authority reserves the right to impose any and all additional requirements deemed necessary to protect downstream properties and aquatic resources from damage due to increased volume, frequency, and rate of stormwater runoff. All stormwater management discharges shall be to an adequate channel.

B. Site Design Feasibility

Stormwater management practices for a site shall be chosen based on the physical conditions of the site. Among the factors that should be considered:

1. Topography
2. Maximum Drainage Area
3. Depth to Water Table
4. Soils
5. Slopes
6. Terrain
7. Hydraulic Head
8. Location in relation to environmentally sensitive features

Applicants shall consult the Virginia Stormwater Management Handbook, Latest Edition for guidance on the factors that determine site design feasibility when selecting a stormwater management practice.

C. Conveyance Issues

All stormwater management practices shall be designed to convey stormwater to allow for the maximum removal of pollutants and reduction in flow velocities. This shall include, but not be limited to:

1. Maximize use of overland flow paths through vegetated areas.
2. Protection of inlet and outfall structures
3. Elimination of erosive flow velocities
4. Providing of underdrain systems, where applicable

The Virginia Stormwater Management Handbook, Latest Edition provides detailed guidance on the requirements for conveyance for each of the approved stormwater management practices.

D. Treatment/Geometric Conditions

All stormwater management practices shall be designed to capture and treat stormwater runoff according to the specifications outlined in the Virginia Stormwater Management Handbook, Latest Edition. These specifications will designate the water quality treatment and water quantity criteria that apply to an approved stormwater management practice.

E. Landscaping Plans Required

All stormwater management practices must have a landscaping plan detailing both the vegetation to be in the practice and how and who will manage and maintain this vegetation. This plan must be prepared by a qualified individual familiar with the selection of emergent and upland vegetation appropriate for the selected BMP.

F. Maintenance Agreements

A legally binding covenant specifying the parties responsible for the proper maintenance of all stormwater treatment practices shall be secured prior to issuance of any permits for land disturbance activities. In addition, all stormwater treatment practices shall have an enforceable operation and maintenance agreement to ensure the system functions as designed. This agreement will include any and all maintenance easements required approving authority to access and inspect the stormwater treatment practices. (See Section 3.4 of this Ordinance for specific maintenance provisions).

G. Safety Fencing

Fencing around the stormwater management pond shall be constructed to prevent unauthorized access to the facility. Fencing shall comply with VDOT and City of Salem standards and shall not conflict with Subdivision & Zoning Ordinances standards: 1' to 3' from invert out to berm elevation – no fencing required; 3' and over from invert out to berm elevation - 6' high fence – board on board or galvanized chain link.

30-146 Water Quality

Unless the project area is less than 1 acre or judged by the plan approving authority for a project to be exempt, the following criteria shall be addressed for stormwater management at all sites:

A. All stormwater runoff generated from land development and land use conversion activities shall not discharge untreated stormwater runoff directly into a jurisdictional wetland or local water body without adequate treatment. Where such discharges are proposed, the impact of the proposal on wetland functions shall be assessed using a method acceptable to the plan approving authority. In

no case shall the impact on functions be any less than allowed by the Army Corp of Engineers (ACE) or the Department of Environmental Quality (DEQ).

B. Annual groundwater recharge rates shall be maintained, by promoting infiltration through the use of structural and non-structural methods. At a minimum, annual recharge from the post development site shall mimic the annual recharge from pre-development site conditions.

C. Land development projects shall comply with the water quality Performance-based or Technology-based criteria in accordance with the following:

1. Performance-based criteria. For land development, the calculated post-development nonpoint source pollutant runoff load shall be compared to the calculated pre-development load based upon the average land cover condition or the existing site condition. A BMP shall be located, designed, and maintained to achieve the target pollutant removal efficiencies specified in Table 1 to effectively reduce the pollutant load to the required level based upon the following four applicable land development situations for which the performance criteria apply:
 - a. Situation 1 consists of land development where the existing percent impervious cover is less than or equal to the average land cover condition and the proposed improvements will create a total percent impervious cover which is less than the average land cover condition.

Requirement: No reduction in the after development pollutant discharge is required.
 - b. Situation 2 consists of land development where the existing percent impervious cover is less than or equal to the average land cover condition and the proposed improvements will create a total percent impervious cover which is greater than the average land cover condition.

Requirement: The pollutant discharge after development shall not exceed the existing pollutant discharge based on the average land cover condition.
 - c. Situation 3 consists of land development where the existing percent impervious cover is greater than the average land cover condition.

Requirement: The pollutant discharge after development shall not exceed (i) the pollutant discharge based on existing conditions less 10% or (ii) the pollutant discharge based on the

average land cover condition, whichever is greater.

- d. Situation 4 consists of land development where the existing percent impervious cover is served by an existing stormwater management BMP that addresses water quality.

Requirement: The pollutant discharge after development shall not exceed the existing pollutant discharge based on the existing percent impervious cover while served by the existing BMP. The existing BMP shall be shown to have been designed and constructed in accordance with proper design standards and specifications, and to be in proper functioning condition.

Table 1*

Water Quality BMP	Target Phosphorus Removal Efficiency	Percent Impervious Cover
Vegetated filter strip	10%	16-21%
Grassed swale	15%	
Constructed wetlands	30%	22-37%
Extended detention (2 x WQ Vol)	35%	
Retention basin I (3 x WQ Vol)	40%	
Bioretention basin	50%	38-66%
Bioretention filter	50%	
Extended detention-enhanced	50%	
Retention basin II (4 x WQ Vol)	50%	
Infiltration (1 x WQ Vol)	50%	
Sand filter	65%	67-100%
Infiltration (2 x WQ Vol)	65%	
Retention basin III (4 x WQ Vol with aquatic bench)	65%	

2. Technology-based criteria. For land development, the post-developed stormwater runoff from the impervious cover shall be treated by an appropriate BMP as required by the post-developed condition percent impervious cover as specified in Table 1. The selected BMP shall be located, designed, and maintained to perform at the target pollutant removal efficiency specified in Table 1. Design standards and specifications for the BMPs in Table 1 which meet the required target pollutant removal efficiency shall be consistent with those provided in the Virginia Stormwater Management Handbook.

D. Stormwater discharges to critical areas with sensitive resources (i.e., cold water fisheries, shellfish beds, swimming beaches, recharge areas, water supply reservoirs) may be subject to additional criteria, or may need to utilize or restrict certain stormwater management practices at the discretion of the plan approving authority.

E. Industrial sites which are listed under the Standard Industrial Code are required to prepare and implement a stormwater pollution prevention plan, and shall file a notice of intent (NOI) under the provisions of the National Pollutant

Discharge Elimination System (NPDES) general permit. The stormwater pollution prevention plan requirement applies to both existing and new industrial sites.

F. Stormwater discharges from land uses or activities with higher potential pollutant loadings, known as “hotspots”, may require the use of specific structural BMPs and pollution prevention practices.

G. Prior to design, applicants are required to consult with the plan approving authority to determine if they are subject to additional stormwater design requirements.

H. Pretreatment Requirements

Every stormwater treatment practice shall have an acceptable form of water quality pretreatment, in accordance with the pretreatment requirements found in the current Virginia Stormwater Management Handbook, Latest Edition. Stormwater infiltration practices, or practices having an infiltration component, as specified in the Virginia Stormwater Management Handbook, Latest Edition, are prohibited, even with pretreatment, in the following circumstances:

1. Where stormwater is generated from highly contaminated source areas known as “hotspots”
2. Where stormwater is carried in a conveyance system that also carries contaminated, non-stormwater discharges
3. Where stormwater is being managed in a designated groundwater recharge area.
4. Under certain geologic conditions (e.g., karst) that prohibit the proper pretreatment of stormwater

30-147 Stream Channel Erosion

To protect stream channels from degradation, a specific channel protection shall be provided as prescribed in the Virginia Stormwater Management Handbook, Latest Edition and Virginia Sediment and Erosion Control regulations.

A. Properties and receiving waterways downstream of any land development project shall be protected from erosion and damage due to increases in velocity and frequency of peak flow rate of stormwater runoff in accordance with the minimum design standards set out in this section.

B. The plan approving authority shall require compliance with subdivision 19 of 4 VAC 50-30-40 of the Erosion and Sediment Control Regulations, promulgated pursuant to Article 4 (§ 10.1-560 et seq.) of Chapter 5 of Title 10.1 of the Code of Virginia.

C. The plan approving authority may determine that some watersheds or receiving stream systems require enhanced criteria, such as stream bank and bottom stabilization, in order to address the increased frequency of bankfull flow

conditions brought on by land development projects.

30-148 Water Quantity

A. The calculations for determining peak flows as found in the Virginia Stormwater Management Handbook, Latest Edition shall be used for sizing all stormwater management practices.

B. Downstream properties and waterways shall be protected from damages from localized flooding due to increases in velocity and peak flow rate of stormwater runoff in accordance with the minimum design standards set out in this section.

C. Stormwater management facilities shall be designed to meet the following criteria: the 10- and 5-year post-developed peak runoff rate from the development site shall not exceed the 2- and 1-year pre-developed peak runoff rate, respectively.

Division 4. Construction Inspection

Stormwater management construction inspection shall utilize the approved plans and specifications for compliance. In addition, the inspection shall comply with the latest version of the Erosion and Sediment Control Regulations, promulgated pursuant to Article 4 (§ 10.1-566) of Chapter 5 of Title 10.1 of the Code of Virginia. Enforcement of this Division shall rest with the plan approving authority, who shall enforce the provisions of this Division as a portion of its obligations for review, approval and inspection under section 106-651 and under the provisions of Chapter 78 of this Code.

30-149 Notice of Construction Commencement and Inspection

A. The applicant must notify the plan approving authority in advance before the commencement of construction. It is critical that the erosion and sediment and stormwater management facilities are the first steps in the construction project. In addition, the applicant must notify the plan approving authority in advance of construction of critical components of the SWM facility. Periodic inspections of the stormwater management system construction shall be conducted by the staff of the plan approving authority or a professional engineer or their designee who has been approved by the plan approving authority. Upon completion, the applicant is responsible for certifying that the completed project is in accordance with the approved plans and specifications (refer to As-built Plans -Section 30-150) and shall provide regular inspections sufficient to adequately document compliance. All inspections shall be documented and written reports prepared that contain the following information:

1. The date and location of the inspection;
2. Whether construction is in compliance with the approved stormwater management plan;
3. Variations from the approved construction specifications; and

4. Any violations that exist.

B. If any violations are found, the property owner shall be notified in writing of the nature of the violation and the required corrective actions. No additional work shall proceed until all violations are corrected and all work previously completed has received approval by the plan approving authority. In addition, the person responsible for carrying out the plan may be required to provide inspection monitoring and reports to ensure compliance with the approved plan and to determine whether the measures required in the plan provide effective stormwater management. If the plan approving authority determines that there is a failure to comply with the plan, notice shall be served upon the permittee or person responsible for carrying out the plan in accordance with Division 6 of this Ordinance.

30-150 Post-Construction Final Inspection and As-Built Plans

All applicants are required to submit actual “as built” plans for any stormwater management practices located on-site after final construction is completed. The plan must show the final design specifications for all stormwater management facilities and must be certified by a professional engineer. A final inspection by the plan approving authority is required before the release of any performance securities can occur. A certified inspection of all aspects of the BMP construction is required, including surface As-Built surveys, and geotechnical inspections during subsurface or backfilling, riser & principal spillway installation, bioretention soil placement and compaction activities.

Division 5. Maintenance Inspection and Repair of Stormwater Facilities

30-151 Maintenance Inspection of Stormwater Facilities

All stormwater management facilities must undergo inspections to document maintenance and repair needs and ensure compliance with the requirements of this ordinance and accomplishment of its purposes. These needs may include: removal of silt, litter and other debris from all catch basins, inlets and drainage pipes, grass cutting and vegetation removal, and necessary replacement of landscape vegetation and any repair or replacement of structural features. At a minimum, a stormwater management facility shall be inspected on an annual basis by the plan approving authority. In the event that the stormwater management facility has not been maintained and/or becomes a danger to public safety or public health, the plan approving authority shall notify the person responsible for carrying out the maintenance plan by registered or certified mail to the address specified in the maintenance covenant. The notice shall specify the measures needed to comply with the plan and shall specify the time within which such measures shall be completed. If the responsible party fails or refuses to meet the requirements of the maintenance covenant, the plan approving authority, after reasonable notice, may correct a violation of the design standards or maintenance needs by performing all necessary work to place the facility in proper working condition, and recover the costs from the owner.

30-152 Records of Maintenance and Repair Activities.

Parties responsible for the operation and maintenance of a stormwater management facility shall make records of the installation and of all maintenance and repairs, and shall retain the records for at least 5 years. These records shall be made available to the plan approving authority during inspection of the facility and at other reasonable times upon request.

Division 6. Enforcement and Penalties.

30-153 Violations

Any development activity that is commenced or is conducted contrary to this Ordinance or the approved plans and permit, may be subject to the enforcement actions outlined in this division and the Virginia Stormwater Management Law.

30-154 Notice of Violation

When the plan approving authority determines that an activity is not being carried out in accordance with the requirements of this Ordinance, it shall issue a written notice of violation delivered by registered or certified mail to the applicant. The notice of violation shall contain:

1. The name and address of the applicant;
2. The address when available or a description of the building, structure or land upon which the violation is occurring;
3. A statement specifying the nature of the violation;
4. A description of the remedial measures necessary to bring the development activity into compliance with this Ordinance and a time schedule for the completion of such remedial action;
5. A statement of the penalty or penalties that shall or may be assessed against the person to whom the notice of violation is directed;
6. A statement that the determination of violation may be appealed to the City Manager by filing a written notice of appeal within thirty (30) days of service of notice of violation.

30-155 Stop Work Orders

Persons receiving a notice of violation will be required to halt all construction activities. This “stopwork order” will be in effect until the plan approving authority confirms that the development activity is in compliance and the violation has been satisfactorily addressed. Upon failure to comply within the time specified, the permit may be revoked and the applicant shall be deemed to be in violation of this Division and upon conviction shall be subject to the penalties provided by Section 30-156.

30-156 Civil and Criminal Penalties

Any owner, agent or proprietor of any tract of land who obtains a permit under this Division or who either with or without the benefit of a permit, violates any provisions of this Division shall be guilty of a Class 1 misdemeanor and subject to a fine not exceeding \$1,000.00 or 30 days' imprisonment for such violation, or both. Each day after the first day during which such violation shall continue shall constitute a separate violation. In addition the plan approving authority may pursue the following actions:

1. The plan approving authority may apply to the circuit court to enjoin a violation or a threatened violation of the provisions of this ordinance without the necessity of showing that an adequate remedy at law does not exist.
2. Without limiting the remedies which may be obtained in this section, the plan approving authority may bring a civil action against any person for violation of this ordinance or any condition of a permit. The action may seek the imposition of a civil penalty of not more than \$2,000 against the person for each violation.
3. With the consent of any person who has violated or failed, neglected or refused to obey this ordinance or any condition of a permit, the plan approving authority may provide, in an order issued by the plan approving authority against such person, for the payment of civil charges for violations in specific sums, not to exceed the limit specified in subdivision 2 of this section. Such civil charges shall be instead of any appropriate civil penalty which could be imposed under subdivision 2.

30-157 Restoration of Lands

Any violator may be required to restore land to its undisturbed condition or in accordance with a Notice of Violation, Stop Work Order, or Permit requirements. In the event that restoration is not undertaken within a reasonable time after notice, the plan approving authority may take necessary corrective action, the cost of which shall be covered by the performance bond, or become a lien upon the property until paid, or both.

30-158 Holds on Certificate of Occupation

Occupation permits shall not be granted until corrections to all stormwater practices have been made in accordance with the approved plans, Notice of Violation, Stop Work Order, or Permit requirements, and accepted by the plan approving authority.

30-159 Liability for damages.

Neither the approval of a stormwater management plan under the provisions of this Division nor the compliance with the conditions of such plan shall relieve any

person from responsibility for damage to other persons or property or impose any liability upon the city from damage to other persons or property.

Sections 30-160 – 30-180 Reserved.